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DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

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Monthly Reports

FILE NO. 143

May-1922

June 8, 1922

Dear Sir:

The following is my report on conditions in Yellowstone National Park, and on the operation of the Park for the month of May, 1922:

I. GENERAL CONDITIONS:

The weather during the past month has been very backward, and the temperature has been considerably below normal. The snow has thawed very rapidly in spite of adverse weather conditions, but this is due to the fact that there was very little body to the snow. The snow has gone entirely from the regions of all park stations except for a few drifts. Patrols and observations made by the rangers enabled an accurate check to be kept on the amount of snow on all park roads as well as reliable information as to how rapidly it was thawing. At the end of the month the only places on the road system where snow blocked automobile traffic were: Continental Divide between Kepler Cascades, West Thumb and Snake River Ranger Station; Between Lake Junction and the Eastern entrance, and between the Canyon Hotel and Tower Falls - the Dunraven Pass road and the road over Mount Washburn.

Weather

The following weather records are quoted from report for May of the Observer in charge of the local United States Weather Bureau at Mammoth Hot Springs (Park Headquarters):

Temperature: Monthly mean, 44.6, is 2.8 below normal. The month was generally cold, there being but few days with temperature above normal. Freezing temperature occurred on 15 days, and the lowest for the month was 25 on the 9th.

Precipitation: Total, 1.08 inches, is 0.83 inch below normal. The first two weeks were generally unsettled with light rain or snow occurring almost daily. Clear to partly cloudy skies with occasional showers characterized the latter half of the month.

Snowfall: Total, 2.0 inches, is less than half the average amount for May. Light snow as recorded on 8 days.

Wind: Average hourly velocity, 9.3 miles, is the highest for May since the Weather Bureau record began in 1903, while the maximum velocity of 43 miles from the south on the 18th has been exceeded three times.

Sunshine: Percentage of possible, 61, is about 18% above normal.

The Monthly Meteorological Report for May is enclosed. Early in May, the local Weather Bureau Observer compiled a very interesting table of weather records for the use of our information office. I enclose a copy for your perusal.

Roads

The long dry fall which prevented the cutting up of roads brought about excellent road conditions this spring. The snow did not thaw very rapidly, and there was not as much water running in the road as is usually the case. Roads to interior points were open on about normal dates. The first car went from Mammoth to Norris on the 26th. The first trip by motor ^{from} to Old Faithful to West Yellowstone was made on the 14th. Teams crossed the Canyon divide on the 29th and cars were able to make the trip on the 31st. The road from Mammoth to Old Faithful is in excellent condition, as is the road from Canyon to Lake. The stretch from Norris to Canyon is still in poor shape. The Cooke City Stage made the first trip to Tower Falls on May 19th and made the trip through to Cooke on the 27th. I walked across Sylvan Pass on June 4th and a car met me at the 9-mile post east of Lake Junction. Snow on the Cody road from the 9 mile post east of Lake Junction to the 22-mile post is about as deep as it was in 1920 on the same date.

Rivers

Unusual conditions with reference to spring floods prevailed in all rivers and creeks in the park. In spite of the fact that the snow over the park has decreased over 75 per cent, there has been very little raise in the various rivers. This is probably caused by the fact that most of the water has

soaked into the ground and that the water content of the snow has been very low.

The Yellowstone River at the Canyon shows a raise of .94 feet during the month, and the Lake rose .88 feet. Buffalo Keeper Lacombe reports all fords on the Lamar as passable on the last of the month.

Ice on Lake

The ice on Yellowstone Lake broke up on the 28th and the entire surface was clear on the 29th. No damage was threatened to any of the docks and bridges. The ice broke up on the 21st and 22nd last year and for a time threatened to destroy the Fishing Bridge and boat docks.

Travel for the Month

The following table shows travel during the month:

<u>Entrance</u>	<u>1 9 2 1</u>		<u>1 9 2 2</u>	
	<u>Cars</u>	<u>People</u>	<u>Cars</u>	<u>People</u>
North	44	131	40	127
West	<u>7</u>	<u>17</u>	<u>0</u>	<u>2</u>
	51	148	40	129
Cooke Stage	<u> </u>	<u>6</u>	<u> </u>	<u>16</u>
Total	51	154	40	145

Travel since Oct. 1, 1921

Tourists entering the park since the beginning of the present travel year - October 1, 1921 to, and including May 31, 1922, number 1035. This is to be compared with 660 tourists entering the park during the same period last year, or an increase of 403. During the same period, that is, October 1, 1921 to May 31, 1922, inclusive, 253 cars entered the park as against 194 cars last year. This is an increase of 59 cars over last year.

II. PERSONNEL:

On May 1st there were 93 on the payrolls which had been increased on May 31st to 122.

The following list shows the number of employees of various classes serving during the month, with a general state-

ment of the kind of work in which they are engaged:

<u>No.</u>	<u>Class</u>	<u>Kind of Work performed</u>
1	Superintendent	General administration and supervision of all activities in the park.
1	Asst. Supt.	Administration, purchasing, disbursing. Promoted from Purchasing Clerk and Special Disbursing Agent on May 22, 1922.
1	Asst. Supt.	Administrative work, information, reports, misc., etc. Became Postmaster on May 22, 1922, but will continue to perform several of his former duties as Asst. Superintendent, thus making available to the park his many years of experience in administrative work here.
1	Asst. Engineer	In charge of engineering work in the park.
7	Clerks	1 Financial Clerk; 1 Cost Accounting Clerk; 1 Personnel, file and report clerk; 1 Time and Payroll Clerk; 2 Stenog-Typists on stenog. work, information and miscellaneous work for superintendent; 1 Stenog-Typist on orders, proposals and vouchers.
1	Park Naturalist	Scientific research work and developing museum.
2	Electricians	Operated power plant regular shift, including Sundays. Status of Chief Lineman changed to Electrician beginning May 22nd.
3	Foremen	1 in charge of Headquarters Corral; 1 repairing sprinkler wagons; 1 on construction.
1	Telegraph Operator	Sent & received all Government Western Union messages, operated one shift on tele. switchboard

1	Telephone Switchboard Operator	Operated telephone switchboard daily shifts, including Sundays.
1	Master Mechanic	In charge of shops and of repairs to heavy road machinery.
1	Blacksmith	General blacksmith work, including shoeing horses in shop, overhauling and repairing tools and equipment.
1	Master Painter	General shop work, including painting equipment and buildings.
6	Laborers	Teaming, freighting, assisting mechanics and miscellaneous work at headquarters.
1	Steward & Master of Transportation	In charge of all transportation and of storehouses. Promoted from Handyman eff. May 22.
1	Chief Buffalo Keeper	In charge of tame buffalo herd.
2	Assistant Buffalo Keepers	1 assisting Buffalo Keeper; 1 in charge of hay ranch operations at Slough Creek.
1	Buffalo Herder	Assisting Buffalo Keeper. Taken up for duty May 15, 1922.
1	Master Plumber	In charge of general plumbing and water and sewer systems.
3	Auto. Mechanics	2 repairing motor trucks and touring cars. 1 on duty at power plant.
1	Carpenter	Repairing buildings at headquarters.
1	Chief Park Ranger	In charge of ranger force.
1	Fish and Game Warden	In charge special observation and reports on wild animals.
1	1st Asst. Chief Park Ranger	In charge of northern district.

2	Asst. Chief Park Rangers	1 on duty at headquarters & Lake District; 1 on duty in Chief Ranger's Office.
20	Park Rangers	Patrolling park borders, pro- tecting game, policing up stations & repairing trails and bridges; 1 resigned eff. close May 31, 1922; 6 at end of month on construction new fish hatchery, Fish Lake.
3	Temporary Park Rangers	Patrolling, etc.; one on construction of fish hatchery.

Leaves of Absence

Clifford Anderson, Park Ranger, May 2-28, 22 da.
 Roy Frazier, Park Ranger, May 1-15, 13 da.
 Wm. J. O'Laughlin, Laborer, May 3, 1 da.
 Fred C. Finch, Park Ranger, May 1-13, 12 da.
 Sam T. Woodring, Chief Park Ranger, May 2-3, 2 da.
 Edward Burkett, Park Ranger, May 2-8, 6 da.
 John D. Fraser, Auto Mechanic, May 4-5, 2 da.
 Chester A. Lindsley, Asst. Supt., May 6, 1 da.
 Lucy Bilkert, Clerk, May 1-6, 6 da.
 Dan W. Tripp, Laborer, May 12 noon-13, 1½ da.
 Clarence Scoyen, Laborer, May 13, 1 da.
 Bert Stinnett, Master Mechanic, noon May 12-noon 13, 1 da.
 W. L. Bicket, Carpenter, noon May 12, 13, 1½ da.
 A. T. McLaughlin, Ranger May 18-19, 2 da.
 Fred C. Finch, Park Ranger, noon May 19, ½ da.
 E. T. Scoyen, Asst. Chief Park Ranger, Noon May 13, ½ da.
 Helen McNutt, Stenog-Typist, May 20, 1 da.
 John D. Fraser, Auto Mechanic, Noon May 18-23, 4½ da.
 Clarence Scoyen, Laborer, noon May 13, ½ da.
 Floyd B. Marriott, Laborer, May 22 noon 24, 2½ da.
 Eri A. Allan, Electrician, May 29, 1 da.
 Julia E. Stockett, Stenog-Typist, May 27-29, 2 da.
 Nathan E. Sandel, Telegraph Operator, May 27-31, 3 da.
 W. H. Riley, Auto Mechanic, May 22, 1 da.
 Nellie Roach, Telephone Operator, May 27-29, 2 da.
 Helen McNutt, Stenog-Typist, May 27-29, 2 da.

Appointments

Peter E. Bilkert, Financial Clerk, \$1800 and quarters, plus in-
 crease of compensation, effective May 8, 1922.

Anton Konecilya, Buffalo Herder, \$80 per mo. and quarters, Temporary, plus increase of compensation, effective May 15, 1922.

Leroy Hill, Assistant Superintendent, \$2500 per annum and quarters, plus increase of compensation, effective May 15, 1922, from Purchasing Clerk and Special Disbursing Agent at \$2100.00 and quarters plus increase of compensation.

Andrew R. Edwin, Clerk \$1440 per annum and quarters, plus increase of compensation, effective May 22, 1922, from Clerk \$1320 and quarters plus increase of compensation.

Charles A. Brant, Superintendent and Master of Transportation, \$1440 per annum and quarters, plus increase of compensation, effective May 22, 1922, from Handyman at \$1200 and quarters, plus increase of compensation.

Eri A. Allan, Electrician \$1500 per annum and quarters plus increase of compensation, from Chief Lineman \$1500 and quarters plus increase of compensation.

Changes of Position

Chester A. Lindsley, appointed Postmaster, Yellowstone Park, \$2400 per annum, effective May 22, 1922. Designated as Assistant Superintendent but without pay by Department's letter of May 1, 1922. (With quarters)

Resignation

Calvin O. Davis, Park Ranger, \$1200 per annum, plus increase of compensation, resigned effective close of May 31, 1922.

Furloughs, Leave Without Pay, etc.

Carrie O. Haumesser, Stenog-Typist, \$1320 per annum, leave without pay, April 1-September 30. Plus increase of compensation.

Francis S. Bregdon, Assistant Electrician, \$1200 per annum, plus increase of compensation and quarters, Furloughed Feb. 1st to July 31, 1922.

In addition to the regular employees listed above under appointment, the following were employed temporarily:

	<u>May 1st</u>	<u>May 31st</u>
Mechanics	1	1
Painters	0	1
Cooks	1	4
2-horse teamster	4	6
4-horse teamster	1	3
Laborers	10	17
Skilled Laborers	12	23
Plumber	<u>0</u>	<u>1</u>
	29	56
Appointees	<u>65</u>	<u>66</u>
	94	122

III. WORK COMPLETED

(a) Construction of Physical Improvements

East Forest Reserve: The six by eight concrete culvert at Moss Creek which was commenced last month was completed. Materials as follows were required in building this culvert: 3364 pounds of reinforcing steel, 178 sacks of cement and 26 cubic yards of sand and gravel.

The 12 foot concrete bridge over Newton Creek which was left in complete last fall was finished. The railings were built and the approaches filled in at each end.

The log diversion crib located just above the bridge over the Elk Fork was lengthened twenty four feet. The crib is 8 feet wide and 9 feet high and was filled with 24 cubic yards of rock.

To prevent further encroaching of the Shoshone River in to the roadway at this place a log diversion was constructed at this place. The crib is 50 feet long, 9 feet wide and 9 feet high and contains 150 cubic yards of rock. The roadway was widened at this point for a distance of 300 feet and a width of about 4 feet, requiring the removal of 120 cubic yards of material.

The roadway embankment across the flat just west of Gunbarrel Creek was ripraped with loose rocks for a distance of 300 feet.

A log diversion crib was built opposite the mouth of Canfield Creek to divert the current of the river from the road embankment. The crib is 90 feet long, 8 feet wide and 5½ feet high, and was filled with 160 cubic yards of rock.

Improvements by Park Utilities: The Yellowstone Park Camps Company during the month finished 25 new cabins at the Mammoth Camp and also constructed a number of new cabins at the Canyon and Old Faithful Camps. The Old Faithful Amusement Hall was also completed.

A new blacksmith shop was erected by the Yellowstone Park Transportation Company at headquarters during the month.

Buffalo Corral: Three acres in the northeast corner of the buffalo corral, near Mammoth Hot Springs, were partitioned off as an enclosure for a small herd of elk that will be fed hay during the summer in order that they may be available for observations of tourists. A total of 62 cedar posts were used in making the partition. The work was done by rangers. The wire used was salvaged from an old fence near Gardiner.

Post Office: A certain amount of construction work was done in connection with the remodeling of quarters in the old Bachelor Officers' Building, now known as the Information Office Building, in preparation for the establishment of the post office in this building. A loading platform was built at the rear of the quarters assigned to the post office and the carpenter remodeled the interior of the quarters in such a way as to make them suitable for post office purposes. He built a new counter as a base for the lock boxes and constructed some tables for the new office.

(b) Maintenance and Repair of Physical Improvements:

Mammoth Hot Springs: Repairs were made to the casein in front of the Mammoth Hotel. A reinforced concrete beam 24 feet long, 12 inches wide and 16 inches high was built across the hole, on which the water main will be placed. Two concrete slabs each 5 feet square were also built over the hole.

Three sets of concrete steps were built at the Bachelor Building to replace steps that were crumbling from having been frozen when built in 1910.

Gardiner-Mammoth Road: The small crew which has been clearing away the slide near the lower steel bridge on the Mammoth-Gardiner road finished that work May 19th.

Buffalo Corral: Rangers repaired the Buffalo Corral near Mammoth Hot Springs, got it ready for the exhibition herd of buffalo. A total of 43 cedar posts were used in this repair work.

IV. WORK IN PROGRESS:

(a) Construction of Physical Improvements

Trails: Two new trail projects were started during the month. The first crew started construction on the Mt. Everts trail on the 16th. This will be one of the most thrilling horseback trips in the park. Starting on Lava Creek about 3 miles southeast of Mammoth, the trail climbs rapidly for about 1,800 feet. About 18 switchbacks are necessary to make the ascent. The trail then follows the rim of the mountain north and descends near the old coal mine. The mountain rises very abruptly about 1,800 feet from the Gardiner River. An excellent view to the north, west and south can be obtained. This trail will prove very popular for half day horseback trips.

The second trail is to be a section of the main loop trail system. Golden Gate has been one of the main problems connected with the construction of trails paralleling the loop roads. In order to get by this Canyon and still give the tourists an opportunity to view Golden Gate, it was necessary to construct a trail through the rim-rock to the summit of Terrace Mountain, and then follow the rim of the Canyon. From the summit of the trail the view is almost incomparable. To the north and east the Snowy and Absaroka Ranges rise three to four thousand feet above the Yellowstone Valley. Northwest and southwest the Gallatin Range stands in bold relief, while to the south Bunsen Peak rises abruptly and shuts off all view in that direction. Below is the beautiful Golden Gate Canyon, Rustic Falls and the concrete viaduct being in plain view.

East Forest Reserve Road: Foreman White with a crew of 18 men and 4 teams continued work in the East Forest Reserve of building bridges, log diversion cribs and making road repairs.

Construction work was started on a 12 foot concrete bridge at Pagoda Creek which was about 80 percent completed at the end of the month. This new bridge will replace an old log structure that was badly decayed and unsafe.

Fish Lake Hatchery: Under the supervision of First Assistant Chief Ranger Trischman, a log building is being erected at Fish Lake, near Soda Butte Ranger Station, for use as a fish hatchery. The interior plans for the hatchery were prepared by Supt. W. T. Thompson, of the U. S. Bureau of Fisheries. All materials and rations were furnished by the Bureau of Fisheries. The exterior design of the building is the same as the one prepared by Landscape Engineer Hall for the new Cooke City Ranger Station. The building is 18x24 feet with a 7-ft. extension in front for a porch. There are six double windows and one door in the building. It will be finished shortly after

the first of June. When completed this building becomes the second of a group of fish culture buildings erected at Fish Lake by the Park Ranger Force. Last year, a cabin for housing employees of the Bureau of Fisheries was built. Rangers working under First Assistant Chief Ranger Trischman in the erection of this new hatchery were: Burkett, H. Anderson, Bauman, Finch and Winn.

(b) Maintenance and Repair of Physical Improvements

May 20th, Foreman Ferrell began work with a small crew, making repairs to the sprinkling system and turning water into the supply tanks. At the end of the month he had proceeded as far as Beaver Lake.

(c) Miscellaneous Improvement Work:

Employees at Headquarters corral performed the regular duties about headquarters, including maintenance of buildings and corrals, hauling of garbage and irrigating of the lawns.

The Master Plumber, with a small amount of assistance, is getting things in shape at headquarters so far as water and sewer lines are concerned. Fire apparatus is being given necessary attention, and repairs are being made to hydrants, lawn hose and other similar equipment used at headquarters. He is also getting the Mammoth Automobile Camp at Mammoth in condition for tourist use.

The Master Painter and his assistants were engaged most of the month in painting the museum, and new post office and the employees quarters.

The Carpenter has also been busy at work on the museum and post office.

The Blacksmith and his assistant spent the month repairing dump wagons and small tools, as well as doing the necessary shoeing of horses.

The mechanics on duty at the garage were busy overhauling the trucks, touring cars and caterpillar tractor.

The Telephone System and Power Plant were operated in the usual manner. The Power Plant was run constantly with the results shown in comparison with results for May, 1931, as follows:

	<u>1921</u>	<u>1922</u>
Total current generated, in KW hours	12,890	18,200
Of this, sold to public utilities @ 5¢ per KW hour	1,996	1,100
Consumed for street lighting	469	1,959
Balance, consumed in Government buildings, for power & lighting, lost on lines in transit	10,425	15,141
Peak load during month in Kilowatts	40	42

Daily reports of operations were submitted.

The Telegraph and Switchboard Office was open daily from 7:30 A.M. to 8:45 P.M., the total business handled being as follows:

Switchboard Calls

On Government local lines	3767
On Hotel Company lines	397
On Long Distance Connections	<u>135</u>
	4199

Telegrams Handled

Government sent	121
Government received	<u>71</u>
	192

Buildings & Grounds

Foreman McFarland: Much work is being done in cleaning up the buildings and grounds and making them presentable for the summer season. All of the ditches on the lawns at headquarters, particularly the extensive lawns lying West of old Fort Yellowstone, were cleaned out and repaired. Many of these ditches are in very bad condition. As a result of the work done, water may now be used on every part of these extensive lawns, and at the writing of this report they are in splendid condition. These lawns lie on a hot springs for-

mation and there is only a few inches of soil over the line of formation so that an unusual amount of water is needed at all times to keep the lawns in good condition, and new soil is being hauled to places in the lawns that have insufficient plant supporting dirt to sustain the grass.

Office Force: The office force was busy with the usual routine work, which includes orders, payment of vouchers, preparation of accounts, reports, general correspondence, etc. 1,471 pieces of official mail were received and 1,610 were sent out during the month. Much attention was given to work of bringing up to date the library of the park, particularly the clipping books.

Sanitation: Engineer A. P. Miller of the U. S. Public Health Service arrived in the park on May 20th and immediately began work on plans for the construction of the Old Faithful sewer system. He also looked over sites for new automobile camps between Mammoth Hot Springs and Tower Falls with Master Plumber Wiggins, giving special attention to the Tower Falls site which is to be developed extensively this summer.

Landscape Work: Landscape Engineer D. H. Hull arrived in the park on May 28th and began the consideration of landscape and architectural work effecting Yellowstone Park at the present time. He immediately went to the site of the new annex to the Lake Hotel and with R. C. Resner, Architect for the Yellowstone Park Hotel Company, laid out the new hotel and completely revised the approach roads to both the new and old hotels. Mr. Hull also considered plans and sites for new mess houses, bunkhouses, etc. to be built in the rear of the Lake Hotel for the use of employees of the Hotel and Transportation Companies. Mr. Hull is also developing plans for the new Lake Ranger Station and Community Center and is giving attention to designing of parapets and guard rails to be built along the roads in the Tower Falls section.

Ranger Force

All appointments for the coming season have been made or recommended, both for the temporary and permanent force. Plans for the assignments for the permanent force have been practically completed.

Rapidly thawing snow rendered extensive patrolling practically impossible during the month. As soon as the snow left, work of policing up the station grounds, sawing wood and making road patrols became the routine for the month. Several

new construction projects were completed by rangers as indicated above.

There has been very little water running in the roads but rangers have spent several days in work that will undoubtedly be of value. Most of this work has been done in places where there are steep grades, and in opening culverts.

Men on the Lake Station spent a total of 8 days on roads in the district, covering roads in the Canyon, Cub Creek, Thumb and from the Thumb towards Old Faithful and Snake River.

Ranger Dupuis, at Tower Falls, spent several days on the road in the Devils Gut and towards Mt. Washburn.

Soda Butte took care of the roads towards Cooke.

Ranger Wisdom spent several days on the road through Sylvan Pass.

In other districts there was very little road work done as there was no necessity for such action.

Thirteen boxes for fire tools were made at practically no expense to the government. The materials used were old steel wall lockers left by the army, pieces of lumber that were practically worthless for any other purpose and a few screws and bolts. Ranger labor was used exclusively.

Park Naturalist

Park Naturalist Skinner completed his trip from eastern cities and arrived at Yellowstone Park on May 6th. Accumulated correspondence was cleaned up, 52 letters regarding the museum and scientific subjects being sent out. A museum at Mammoth was started; about 200 specimens were trimmed, cleaned, placed in three cases and labeled. Two inspections of forests for disease were made. A manuscript on the White Pelican was compiled and written up. Studies were pursued that resulted in his notes on Seasonal Changes and Natural Phenomena. Trip to the Upper Geyser Basin was begun to make the usual spring checking up on the geysers. Throughout the month, notes on birds, animals, flowers and other natural objects were collected and recorded.

In addition to above, $1\frac{1}{2}$ days special work was done by order of the Park Superintendent.

VI. PLANS OR PROPOSED WORK:

On June 1st, Foreman White, now working in the East Forest Reserve, will send a small crew of three men into Sylvan Pass to blast out the snow. After the drifts have been well loosened up by blasting, the size of the crew will be increased, and the remaining snow shoveled out in time to allow travel through on June 19th.

Another road crew will be organized and sent out June 4th, under Foreman Casey to open Dunraven Pass.

On June 1st a road repair crew will be started out in charge of Foreman Conahan. They will work over the road to the Upper Basin, thence to West Thumb and Snake River. Three culverts will be installed near the Black Crowler to take care of water from a new hot spring.

A section of retaining wall between Elk Park and Gibbon Meadow which slid out the past winter will be replaced. Also about 50 feet of the parapet wall at Gibbon Falls will be rebuilt.

About June 15th the sprinkler crews will be started out to begin the season's work. Eighteen horse drawn and two auto truck sprinklers will be operated this season. At the same time sixteen small road maintenance crews will be sent out to their stations for the season.

June 6th, a camp will be established at the Needles near Tower Falls in charge of Foreman Haslam, where it is proposed to construct log guard rails and stone parapets along the dangerous sections of the roads.

Ranger Service: The park season opens on the 20th of June and plans for the month for the rangers naturally center about this date. It will be necessary to transfer men to their summer stations and put the park stations in shape to handle tourist traffic and it will also be necessary on the 15th and the few days following to take up 44 temporary rangers and assign them to duty.

Completion of the fire tool boxes and placing them in their locations will also be undertaken.

Trail work will be continued in proportion to the funds available.

Office Work: Temporary permits for saddle horse parties and miscellaneous privileges in the park will be issued. Pro-

posals for supplies will be prepared and sent out; the accounting system will be adjusted to the new methods prescribed by the Bureau of the Budget; the estimates for the 1924 ~~estimated~~ ~~for the~~ fiscal year will be whipped into final shape; the new road budget, as it affects Yellowstone Park, will be compiled; the information office will be opened; a vast array of miscellaneous matters will be taken care of by the office force. Continuance of regular routine correspondence.

VII. POLICIES:

Circulars Nos. 5-12, inclusive, were issued during the month of June and several of them indicating change in policy. Copies are attached hereto for the information of the Washington office. Special attention is directed to Circular No. 7, which provides for the liquidation of the Commissary Store at headquarters which has been operated for many years. It will be finally closed on June 30th. Attention is also invited to Circular 8 relating to cooperation by the Yellowstone Park Transportation Company in the delivery of milk to government families at headquarters. Circular #9 closes the Yellowstone River and its tributaries except the Gardiner until June 20, 1922. This order was issued to protect the native trout during the spawning season. The same order opens the Madison River and its tributaries, which was closed October 15, 1921, on June 1st, 1922.

VIII. COST OF OPERATION:

The total expenditures during the month as shown by the monthly report amounted to \$15,989.56. The Monthly Cost of Work Report, showing costs in detail, will be transmitted as soon as completed.

IX. OTHER MATTERS OF INTEREST:

Wild Animals

Conditions for game have been excellent during the past six weeks, and all game are in splendid shape. Green grass is now available for all park herds. The transition from winter forage to early spring grass has been so gradual that there have been no deaths from the effects of green grass.

Elk: Elk are in excellent shape. Calving time is now at its height, and under prevailing conditions we should have a large and sturdy crop. The first calf was noted on May 24th and several have been seen since. There should be at least 2500 calves born in the park herds this spring. In several cases the elk are remaining in the lower valleys and for some reason seem reluctant to move on to their summer range. A herd of about 600

is doing considerable damage to the Buffalo Ranch Hay Field at Chalcedony Creek. Repeated efforts have been made to drive them back on Specimen Ridge, but they invariably return at night. Large numbers have already worked over Sunraven and other passes into Hayden Valley. The Gallatin Herd is returning very rapidly. Elk have been noted in all parts of the district and as high up as the point where the Fawn Pass Trail crosses from the Fan Creek to the Gallatin River watershed.

Deer

Deer have never been so numerous as at present. A herd of 54 were seen on the alfalfa field at Gardiner early in the month. This is the largest number that has been reported in a single band for years. Assistant Chief Trischman saw 46 in one band near Hellroaring. I have every reason to believe that the mule deer are increasing rapidly and there is no danger of extermination of this species. No fawns were seen in May although there are undoubtedly some in the park.

White tail deer are scarce in the park. During the past month only six were noted, all of these being in and about headquarters.

Moose

Moose in the Thorofare country are reported as being in good condition. One large cow was seen near Swan Lake on the 23rd. Signs in the vicinity of Willow Park lead to the belief that several wintered in that vicinity. Moose are thriving in all parts of the park except the Upper Yellowstone where they received a severe set back last fall by hunters south of the park line.

Mountain Sheep

Sheep have been seen in many parts of the Northern District, along the road to Tower Falls, Mt. Everts, Blacktail and Hellroaring. On the afternoon of May 24th Mr. Hays, President of the Camps Company, saw five mountain sheep, all rams, three miles west of Mammoth on the road to Tower Falls. The sheep refused to get out of the road. No lambs have been reported. I saw 9 rams near the Yellowstone River Bridge on the road to the Buffalo Ranch on the 11th.

Report of Game

On May 11th and 12th, in company with Chief Ranger Woodring and First Assistant Chief Ranger Trischman, I rode to Tower Falls Ranger Station, Hellroaring elk range, Cottonwood

Basin, Mount Everts range, etc., and saw the following animals:

2095 Elk

75 Deer

52 Antelope

298 Buffalo

9 Mountain Sheep

5 Elk (Dead)

Bears: Bears are out in all parts of the park. Tracks have been seen in the vicinity of all stations, and the animals themselves in many cases. Park Ranger Henry Anderson reports having seen a band of 5 grizzlies and another of 5 on Specimen Ridge.

Wild Buffalo: It was not possible to make any observations of this herd during the month.

Game Buffalo Herd: The herd is doing well on natural forage. A total of 78 calves have been born to date. Chief Buffalo Keeper Lacombe reports what he believes to be a record, when 42 were born in one day, the 15th.

The following is a statement of the herd at present:

Total in herd Oct. 1st		506
Shipped to Parks	4	
Killed during vaccination	2	
Died during winter	3	
" Hemorrhagic		
Septicemia	61	
Total shipped & Died	56	4
		60
		446
Calves this Spring		78
In herd at present		524

On the night of the 19th the boom on the Lamar where the drift fence crosses was carried out by high water and the herd escaped through the opening. They were rounded up and returned and the break repaired.

Predatory Animals: Park Ranger E. Anderson has been at work hunting out wolf and coyote dens during the month. He discovered one den with 2 adults and 6 pups. He destroyed the entire family. The two adults are undoubtedly the pair that have

been ranging in the Lamar Valley for several years and efforts have been made to locate them every spring. This den was finally located on Specimen Ridge. This pair has killed about 50 elk in the Lamar country the last three years and it is a great deal of satisfaction to have an end made to their depredations. This makes a total of 21 wolves and over a hundred coyotes for the winter which is remarkably good work.

The work of exterminating predatory animals is one of the most important duties of the park protective force. The state of Idaho places a cash value of at least \$80.00 on an elk. According to these figures these two wolves have done about \$4,000.00 worth of damage in the park in three years. The natural reproduction of wolves is very rapid, and if allowed to go unmolested they would soon take an appalling toll of our park game annually. The protection of these animals would result in an enormous loss, both from an economic and game conservation standpoint. It is evident, therefore, that the work of controlling these animals must be vigorously prosecuted by the most effective means available, whether or not this meets with the approval of certain game conservationists.

Birds: Migratory birds were first seen: Vesper sparrow on the 6th; Brewer blackbird on the 8th; Wright flycatcher on 9th; Tree swallow on the 15th; California gull on the 16th; Chipping sparrow on the 20th; Audubon warbler, Black tern, Sora rail, Spotted sandpiper on the 21st; White pelican on the 23rd; and blue heron on the 30th. The month was notable for the first recorded occurrence of the Bobolink, increasing our list to 203 species; and for the first Black tern recorded since 1915.

Trees & Flowers: May 2nd the first dandelion was seen in bloom; 9th, barberry and bladder pod; also spring beauties, blue and yellow violets common on 9th; 17th, shooting stars in bloom on Capitol Hill, also pasque along road to Tower Falls; 21st, gooseberries in bloom also dwarf sunflowers, larkspur, and poppy; 26th, lungwort; 28th, dogtooth violets and marsh marigold at 7500 feet, also spring beauties and yellow bells at the same altitude; 30th, strawberries in bloom above Mammoth.

Leaves started to grow on deciduous trees and bushes; aspen at 5300 feet on 16th, at 6300 feet on 21st; 30th, willows in Gardiner Canyon; 31st, raspberries, cottonwoods in Gardiner Canyon; 22d, birch at Birch Spring; 25th, cottonwoods at Mammoth and aspens west of Mammoth; 26th, willows on Swan Lake Basin.

Sickness & Medical Service

Dr. W. E. Crasback, who went to the hospital at Chico Hot Springs the latter part of April, to undergo an operation for appendicitis, returned to the park on the 16th. He reports that he made 50 calls on the employees of the park since that date.

Natural Phenomena

At Mammoth Hot Springs: Jupiter, White Elephant, Orange Spring, Cleopatra, and Round Terrace remain about the same as last month. Coloring has improved and extended at Angel and Minerva Terraces, but Hymen has died out still more than it was. Palette Spring is dead, and Harrow Gauge Terrace has only slight activity.

At Norris Geyser Basin: Whirligig Geyser is more active than last year, playing most of the time. Constant Geyser is more active, playing regularly every minute. Mud Geyser does not play so high as last year but contains more muddy water. Valentine Geyser is not quite so active, but still plays two or three times a week. Bathtub boils this year but does not play, water clear. New Crater plays from twenty to forty seconds out of every minute. Minuteman plays irregularly with intervals varying from one to five minutes. Monarch is not playing and apparently has not played at all during the winter.

At Lower Geyser Basin: Fountain Geyser is not playing but the Great Fountain plays every 8-11 hours. The White Dome is playing strong to a height of 50 feet very regularly every hour. The Firehole Lake, Warrior Geyser, Pink Cone, Kittens, Diamond Pool, Surprise Pool, and Buffalo Spring are all normal. The Five Sisters Spring shows what is probably the most brilliant and beautiful algaous growth in the Park.

At Middle Geyser Basin: Excelsior, Turquoise, and Prismatic Lake are all normal.

At Sisuuit Basin: all features are normal, algaous growth increasing.

At Upper Geyser Basin: Old Faithful is playing every 53-74 minutes with an average of 64.6 minutes; Daisy is quite regular, average 75 minutes. Oblong plays daily. Grand plays every 3-10 hours. The new geyser three hundred feet south of the Giantess has developed a regular interval of 19-20 minutes. Riverside is still remarkably regular at seven hour intervals. Lone Star has increased its interval slightly but is still very regular. Giantess, Beehive, Castle, Giant, Grotto, and Artemisia Geysers are all playing normally. Mortar and Pan are not playing. Morning Glory Spring has

changed its color from blue to green, owing to decrease of temperature allowing algae to develop. The water remains clear but the change is probably permanent. All features near Emerald Pool remain normal and the algae near Handkerchief has increased. Black Sand Pool is normal. The Punch Bowl is still improving in color and the formation is gradually covering the repairs made. All geysers and springs are well up to usual activity and strength.

Special Visitors

Mr. D. A. Stringer and wife, of Calgary, Alberta, Canada, were the first visitors from a foreign country to enter the park this season. They came in on May 23rd and went to Tower Falls.

Mr. James S. Agnew, of Visalia and San Diego, California, a friend of the parks, particularly Sequoia National Park, visited headquarters May 21st and 22nd. With him, was Mr. John Wilcox, prominent citizen of St. Anthony, Idaho, business associate of Mr. Agnew.

Superintendent Grater of the Leadville Hatchery arrived in the Park May 25th and on the 26th went to Soda Butte, with two assistants, for the purpose of starting work at Fish Lake. Mr. Grater's Assistant, Mr. Ainsworth, accompanied by Reuben Jones, went out to the Lake with the hotel construction crew, which started work on May 28th. Mr. Grater will go to the Lake as soon as he can get through with his truck. Mr. Grater conferred with Mr. Branson, at Emigrant, in regard to supplying the Park with fingerlings. He says there are many fine brook trout fingerlings available for planting now, but he does not know whether Mr. Branson wants us to have them or not.

Motion Pictures

No motion picture permits were issued, or were any operators present in the park during the month.

Miscellaneous

Entertainments: Picture shows were held as usual every Saturday night under the direction of the Amusement Club at park headquarters. These shows will be discontinued the end of May for the season.

Religious Services: Church services were held in the Chapel as follows: Mr. W. Friend Day, layman of the Episcopal Church held services on the morning of May 14th and on the evening of the 23th. Rev. J. H. Groth, English Lutheran Minister of Livingston, held evening services on the 21st.

School: Enclosed is a copy of the monthly report of attendance at the school maintained at park headquarters for the benefit of employees' children, by Mrs. Marriott. The regular all day session ceased the 26th of May, and only morning sessions are held now for the benefit of those pupils requiring special attention in certain subjects.

IX. RECEIPTS AND REMITTANCES:

Enclosed is the monthly report of revenues due and collected and transmitted during May on the usual blank forms. The total amount collected as shown by the report is described as follows:

Postal Money Order No. 46822, dated May 5, 1922, drawn by the Postmaster at Yellowstone Park, Wyo., on the Postmaster at Washington, D. C., amount	\$ 1.05
Certified Check #1862, dated May 17, 1922, drawn by W. M. Nichols, on the National Bank of Montana, Helena, Montana, to the Director, National Park Service, amount	136.68
Certified Check #1771, dated May 17, 1922, drawn by W. M. Nichols, on the National Bank of Montana, Helena, Montana, to the Director, National Park Service, amount	5.49
Certified Check #1850, dated May 26, 1922, drawn by E. E. Moorman, on the Northwestern National Bank, Livingston, Montana, to the Director, National Park Service, amount	<u>1.15</u>
	\$144.37

Acknowledgment of the receipt of the enclosed money is requested.

Cordially yours,

The Director,
National Park Service,
Department of the Interior,
Washington, D. C.

Horace M. Albright,
Superintendent.

Enclosures.